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10/660,491	09/12/2003	Jia-Shyong Cheng	TOP 324	6351

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RABIN & BERDO, P.C.
Suite 500
1101 14th Street, N.W.
Washington, DC 20005

EXAMINER	
PARKER, KENNETH	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H·A

Office Action Summary	Application No.	Applicant(s)	
	10/660,491	CHENG ET AL.	
	Examiner	Art Unit	
	Kenneth A. Parker	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-33 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-33 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 12-14, 16, 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al 6731358.

Tanaka discloses a liquid crystal with a passivation layer 7, color filter 8, (indicated as a photoresist, which are organic) , and overcoat layers 9 and 10, which are also organic). The passivation layer 7 is etched using the hole in 8 as a mask, column 8, lines 35-50). Therefore, these claims are anticipated by the reference.

The references shows in relation to claim 1. A liquid crystal display with an integrated color filter, comprising: an active matrix substrate with a plurality of switching elements (see cover figure); an insulating layer 7 formed on the active matrix substrate 1; a double-organic layer formed on the insulating layer (8-9); a plurality of pixel electrodes 11 formed on the double-organic layer, and electrically connected to the respective switching elements via a plurality of respective contact holes 13; a substrate positioned a predetermined distance above the active matrix substrate (inherent to a conventional liquid crystal display element of column 1 and required for operation); and a liquid crystal layer between the two substrates (inherent to a conventional liquid crystal display element of column 1 and required for operation).

In relation to claim 3, the color-filter units layer is formed above the transparent organic layer. The references shows in relation to claim 12. The liquid crystal display with an integrated color filter as claimed in claim 1, wherein the pixel electrodes are made of indium tin oxide. In relation to claim 13, the contact holes pass through the insulating layer and the double-organic layer.

The references shows in relation to claim 14. An integrated color filter, comprising: a substrate; a plurality of switching elements formed on the substrate in a matrix arrangement; an insulating layer formed on the switching elements; a transparent organic layer formed above the insulating layer; a plurality of color-filter units formed above the transparent organic layer; and a plurality of pixel electrodes formed above the color-filter units, and electrically connected to the respective switching elements via a plurality of respective contact holes, wherein the contact holes pass through the transparent organic layer, color-filter units and the insulating layer.

The references shows in relation to claim 16. A method of fabricating an integrated color filter, comprising: providing a substrate; forming a plurality of switching elements on the substrate in a matrix arrangement; forming an insulating layer on the switching elements; forming a transparent organic layer on the switching elements, wherein the transparent organic layer has a first hole exposing a part of the surface of the insulating layer; etching the insulating layer by using the transparent organic layer as an etching mask to form a second hole in the insulating layer, wherein the second hole joins the first hole and exposes a part of the surface of the switching elements; forming a plurality of color-filter units with a third hole on the transparent organic layer,

wherein the third hole forms a contact hole together with the first and the second holes to expose the part of the surface of the switching elements; and forming a plurality of pixel electrodes on the color-filter units, wherein the pixel electrodes are electrically connected with the switching elements via the contact hole.

The references shows in relation to claim 24. The method of fabricating an integrated color filter as claimed in claim 16, wherein the pixel electrodes are made of indium tin oxide.

.Claims 1-2, 4, 11-13, 15, 25-26, 32- 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakata et al 6429916.

Nakata discloses a liquid crystal with a passivation layer 8, color filter 13, (indicated as a photoresist col, 3-4, which are organic) , and overcoat layer 14 (acrylic photoresist, column 4, ines 5-18), also organic).

The references shows in relation to claim 1. A liquid crystal display with an integrated color filter, comprising: an active matrix substrate with a plurality of switching elements (see cover figure); an insulating layer formed on the active matrix substrate 8; a double-organic layer formed on the insulating layer (13-14); a plurality of pixel electrodes 9 formed on the double-organic layer, and electrically connected to the respective switching elements via a plurality of respective contact holes; a substrate positioned a predetermined distance above the active matrix substrate (inherent to a conventional liquid crystal display element of column 1 and required for operation); and

a liquid crystal layer between the two substrates (inherent to a conventional liquid crystal display element of column 1 and required for operation).

In relation to claim 2, the double-organic layer comprises a plurality of color-filter units and a transparent organic layer. In relation to claim 4, the transparent organic layer is formed above the color-filter units layer. In relation to claim 5, the transparent organic layer is formed of polycarbonate or acrylic-resin. In relation to claim 12, the pixel electrodes are made of indium tin oxide. In relation to claim 13, the contact holes pass through the insulating layer and the double-organic layer.

The references shows in relation to claim 15. An integrated color filter, comprising: a substrate; a plurality of switching elements formed on the substrate in a matrix arrangement; an insulating layer 8 formed on the switching elements; a plurality of color-filter units 9 formed above the insulating layer; a transparent organic layer 14 formed above the color-filter units; and a plurality of pixel electrodes 9 formed above the color-filter units, and electrically connected to the respective switching elements via a plurality of respective contact holes 11, wherein the contact holes pass through the transparent organic layer, color-filter units and the insulating layer.

The references shows in relation to claim 25. A method of fabricating an integrated color filter, comprising: providing a substrate; forming a plurality of switching elements on the substrate in a matrix arrangement; forming an insulating layer on the switching elements; forming a plurality of color-filter units with a first hole on the insulating layer; forming a transparent organic layer on the color-filter units, having a second hole to expose the first hole; etching the insulating layer by using the

transparent organic layer as a mask, forming a third hole in the insulating layer to expose a part of the surface of the switching elements, wherein the third hole forms a contact hole together with the first and the second holes; and forming a plurality of pixel electrodes on the transparent organic layer, wherein the pixel electrodes are electrically connected with the switching elements via the contact hole.

In relation to claim 26, the transparent organic layer is made of polycarbonate or acrylic-resin. In relation to claim 33, the pixel electrodes are made of indium tin oxide.

In relation to 11 and 32, red, blue and green are disclosed in column 3.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-11, 17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al 6731358 in view of Gu et al 6011274 and 5955744.

Lacking from the disclosure in relation to claim 5. The liquid crystal display with an integrated color filter as claimed in claim 2, wherein the transparent organic layer is formed of polycarbonate or acrylic-resin. Lacking from the disclosure in relation to claim 6. The liquid crystal display with an integrated color filter as claimed in claim 2, wherein the light transmission of the transparent organic layer is above 90%. Lacking from the disclosure in relation to claim 7. The liquid crystal display with an integrated

color filter as claimed in claim 2, wherein the dielectric constant of the transparent organic layer is 2.6-3.6. Lacking from the disclosure in relation to claim 8. The liquid crystal display with an integrated color filter as claimed in claim 2, wherein the thickness of the transparent organic layer is 1.5-3.5 .mu.m. Lacking from the disclosure in relation to claim 9. The liquid crystal display with an integrated color filter as claimed in claim 2, wherein the dielectric constant of the color-filter units is 3.5-5.0. Lacking from the disclosure in relation to claim 17. The method of fabricating an integrated color filter as claimed in claim 16, wherein the transparent organic layer is made of polycarbonate or acrylic-resin. Lacking from the disclosure in relation to claim 18. The method of fabricating an integrated color filter as claimed in claim 16, wherein the light transmission of the transparent organic layer is above 90%. Lacking from the disclosure in relation to claim 19. The method of fabricating an integrated color filter as claimed in claim 16, wherein the dielectric constant of the transparent organic layer is 2.6-3.6. Lacking from the disclosure in relation to claim 20. The method of fabricating an integrated color filter as claimed in claim 16, wherein the thickness of the transparent organic layer is 1.5-3.5 .mu.m. Lacking from the disclosure in relation to claim 21. The method of fabricating an integrated color filter as claimed in claim 16, wherein the dielectric constant of the color-filter units is 3.5-5.0. Lacking from the disclosure in relation to claim 22. The method of fabricating an integrated color filter as claimed in claim 16, wherein the thickness of the color-filter units is 1.0-2.0 .mu.m. Lacking from the disclosure in relation to claim 23. The method of fabricating an integrated color

filter as claimed in claim 16, wherein the color-filter units includes red, green and blue units.

Gu teaches that high transmissivity is better for high brightness and that acrylic was suitable for that reason. Therefore it would have been obvious to employ high transarency and acrylic to one of oridnary skill. Red, green and blue were well known to employ to enable full color display, which would have been obvious to one of ordinary skill for that reason. Gu teaches that low dielectric such as below 3 was preffered for low crosstalk and coupling. Therefore it would have been obvious to one of ordinary skill employ the layers with below 3 dielectric constant for low crosstalk and coupling. Thickness as claimed were conventional as evidenced by Gu and were further result effective variables between the well known desire to be as thin as possible and the well known need to be thick enough for there required function. As the selection of a result effective variable was considered obvious to one of ordinary skill, selection of this varaible would not patentably distinguish over the reference.

Claims 6-10, 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakata et al 6429916 in view of Gu et al 6011274 and 5955744. Lacking from the disclosure in relation to claim 6. The liquid crystal display with an integrated color filter as claimed in claim 2, wherein the light transmission of the transparent organic layer is above 90%. Lacking from the disclosure in relation to claim 7. The liquid crystal display with an integrated color filter as claimed in claim 2, wherein the dielectric constant of the transparent organic layer is 2.6-3.6. Low dielectric (below

3) was well known for minimizing coupling between the pixel electrode and the driving lines (which minimizes crosstalk). Therefore it would have been obvious to one of ordinary skill to employ a dielectric below 3 for the benefit of minimizing coupling. Lacking from the disclosure in relation to claim 8. The liquid crystal display with an integrated color filter as claimed in claim 2, wherein the thickness of the transparent organic layer is 1.5-3.5 .mu.m. Lacking from the disclosure in relation to claim 9. The liquid crystal display with an integrated color filter as claimed in claim 2, wherein the dielectric constant of the color-filter units is 3.5-5.0. Lacking from the disclosure in relation to claim 10. The liquid crystal display with an integrated color filter as claimed in claim 2, wherein the thickness of the color-filter units is 1.0-2.0 .mu.m. Lacking from the disclosure in relation to claim 27. The method of fabricating an integrated color filter as claimed in claim 25, wherein the light transmission of the transparent organic layer is above 90%. Lacking from the disclosure in relation to claim 28. The method of fabricating an integrated color filter as claimed in claim 25, wherein the dielectric constant of the transparent organic layer is 2.6-3.6. Lacking from the disclosure in relation to claim 29. The method of fabricating an integrated color filter as claimed in claim 25, wherein the thickness of the transparent organic layer is 1.5-3.5 .mu.m. Lacking from the disclosure in relation to claim 30. The method of fabricating an integrated color filter as claimed in claim 25, wherein the dielectric constant of the color-filter units is 3.5-5.0. Lacking from the disclosure in relation to claim 31. The method of fabricating an integrated color filter as claimed in claim 25, wherein the thickness of the color-filter units is 1.0-2.0 .mu.m.

Gu teaches that high transmissivity is better for high brightness and that acrylic was suitable for that reason. Therefore it would have been obvious to employ high transarency and acrylic to one of oridnary skill. Red, green and blue were well known to employ to enable full color display, which would have been obvious to one of ordinary skill for that reason. Gu teaches that low dielectric such as below 3 was preffered for low crosstalk and coupling. Therefore it would have been obvious to one of ordinary skill employ the layers with below 3 dielectric constant for low crosstalk and coupling. Thickness as claimed were conventional as evidenced by Gu and were further result effective variables between the well known desire to be as thin as possible and the well known need to be thick enough for there required function. As the selection of a result effective variable was considered obvious to one of ordinary skill, selection of this varaible would not patentably distinguish over the reference.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A. Parker whose telephone number is 571-272-2298. The examiner can normally be reached on M-F 10:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kenneth A Parker
Primary Examiner
Art Unit 2871